



2018 - 2019 Major Map

Engineering Management, **BSE**




School/College: [Ira A. Fulton Schools of Engineering](#)
ESEMGBSE











Some accelerated combinations are not available to ASU Online students. Interested students should contact their academic advisor for more information.

Term 1 - A 0 - 6 Credit Hours	Hours	Minimum Grade	Notes
ASU 101-UC: The ASU Experience	1		<ul style="list-style-type: none"> An SAT, ACT, Accuplacer, TOEFL, or IELTS score determines placement into first-year composition courses Mathematics Placement Assessment score determines placement in mathematics course ASU 101 or College specific equivalent First Year Seminar required of all students Prep for success using the Freshman Guide. Join a Fulton community. Explore engineering and technical professions.
FSE 100: Introduction to Engineering	2	C	
Basic Science Elective	3-4		
Term hours subtotal:	6-7		

Term 1 - B 6 - 12 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 PSY 101: Introduction to Psychology (SB)	3	C	<ul style="list-style-type: none"> View ASU Online first-time freshmen registration information here. If ENG 105 is taken, a 3-credit hour elective must also be taken prior to graduation.
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	6		

Term 2 - A 12 - 18 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 265: Calculus for Engineers I (MA)	3	C	
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	6		

Term 2 - B 18 - 24 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 110: Principles of Programming with Java (CS)	3	C	<ul style="list-style-type: none"> Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
 MAT 266: Calculus for Engineers II (MA)	3	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	6		

Term 3 - A 24 - 30 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 205: Object-Oriented Programming and Data Structures (CS)	3	C	
MAT 267: Calculus for Engineers III (MA)	3	C	
Term hours subtotal:	6		
Term 3 - B 30 - 37 Credit Hours	Hours	Minimum Grade	Notes
ACC 231: Uses of Accounting Information I	3	C	
PHY 121: University Physics I: Mechanics (SQ)	3	C	
PHY 122: University Physics Laboratory I (SQ)	1	C	
Complete Mathematics (MA) requirement.			
Term hours subtotal:	7		<ul style="list-style-type: none"> • Prep for success using the Sophomore Guide. • Consult the Resume, Presentation, and Resource Library for tips on how to create a technical resume, job shadow, do informational interviews and mentor with alumni.
Term 4 - A 37 - 43 Credit Hours	Hours	Minimum Grade	Notes
ACC 241: Uses of Accounting Information II	3	C	
Math or Science Elective	3	C	
Term hours subtotal:	6		
Term 4 - B 43 - 49 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 ECN 212: Microeconomic Principles (SB)	3	C	
Math or Science Elective	3	C	
Term hours subtotal:	6		<ul style="list-style-type: none"> • Pursue an undergraduate research experience. • Apply for internships. • Attend career fairs and events.
Term 5 - A 49 - 56 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 MAT 242: Elementary Linear Algebra	2	C	
CHM 114: General Chemistry for Engineers (SQ)	4		
IEE 320: Extreme Excel	1	C	
Term hours subtotal:	7		
Term 5 - B 56 - 62 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 380: Probability and Statistics for Engineering Problem Solving (CS)	3	C	
COM 263: Elements of Intercultural Communication (SB & C & G)	3		
Term hours subtotal:	6		<ul style="list-style-type: none"> • Please note that in term 5B, COM 263 requires a minimum cumulative 2.25 GPA to register. • Plan for success using the Junior Guide. • Network at student organization competitions or professional societies.
Term 6 - A 62 - 68 Credit Hours	Hours	Minimum Grade	Notes
MGT 300: Organization and Management Leadership	3	C	
Global Engineering/Sustainability/Entrepreneurship	3-4		
Term hours subtotal:	6-7		
Term 6 - B 68 - 74 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 431: Engineering Administration (L)	3	C	
IEE 381: Lean Six Sigma Methodology	3	C	
Term hours subtotal:	6		<ul style="list-style-type: none"> • Research and prepare for graduate school. • Apply for an engineering 4+1 program.

- Develop a [professional profile online](#).

Term 7 - A 74 - 80 Credit Hours	Hours	Minimum Grade	Notes
IEE 300: Economic Analysis for Engineers	3	C	
Industry Focus Area Elective	3	C	
Term hours subtotal:	6		
Term 7 - B 80 - 87 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 321: Ethics and Technical Communication	1	C	<ul style="list-style-type: none"> • Plan for success using the Senior Guide. • Use Handshake to apply for full-time positions. • Complete an in-person or virtual practice interview.
★ IEE 369: Work Analysis and Design (L)	3	C	
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	7		
Term 8 - A 87 - 93 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 458: Project Management	3	C	
Upper Division Industry Focus Area Elective	3	C	
Term hours subtotal:	6		
Term 8 - B 93 - 99 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 454: Risk Management	3	C	
Upper Division Industry Focus Area Elective	3	C	
Term hours subtotal:	6		
Term 9 - A 99 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 456: Introduction to Systems Engineering	3	C	
Upper Division Industry Focus Area Elective	3	C	
Term hours subtotal:	6		
Term 9 - B 105 - 111 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Industry Focus Area Elective	3	C	
Upper Division Humanities, Arts and Design (HU)	3		
Term hours subtotal:	6		
Term 10 - A 111 - 117 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 485: Systems Design Capstone I (L)	3	C	<ul style="list-style-type: none"> • Effective spring 2019, IEE 485 also requires IEE 321 with a C or better as a prerequisite. • Effective fall 2019, IEE 485 also requires IEE 369 with a C or better as a prerequisite.
IEE 477: System Dynamics and Thinking	3	C	
Term hours subtotal:	6		
Term 10 - B 117 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ IEE 486: Systems Design Capstone II (L)	3	C	
Term hours subtotal:	3		

- Major maps are built based on full-time enrollment, but can be adjusted as necessary for part-time attendance.
- The curriculum updates referred to in some terms of the major map occurred because the Ira A. Fulton Engineering programs are **required** by our accreditation agency ABET to follow a curriculum continuous improvement process to keep up with technology changes and feedback from industry constituents. The changes were made to better prepare students for future success in the capstone courses for the degree.

Hide Course List(s)/Track Group(s)

Basic Science Elective	Global Engineering/Sustainability/Entrepreneurship	Industry Focus Area (Business Analytics)
BIO 181: General Biology I (SQ)		Required courses:
BIO 182: General Biology II (SG)	FSE 301: Entrepreneurship and Value Creation	IEE 376: Operations Research Deterministic Techniques/Applications
BIO 201: Human Anatomy and Physiology I (SG)	PUP 190: Sustainable Cities ((HU or SB) & G)	IEE 385: Engineering Statistics: Probability
BIO 202: Human Anatomy and Physiology II (SG)	SES 106: Habitable Worlds (SQ)	IEE 3** Elective
GLG 101: Introduction to Geology I (Physical) (SQ)	SOS 100: Introduction to Sustainability (G)	IEE 461: Production Control
PHY 111: General Physics (SQ) AND PHY 113: General Physics Laboratory (SQ)	SOS 110: Sustainable World (SB)	IEE 474: Quality Control
	SOS 111: Sustainable Cities ((HU or SB) & G)	IEE 4** Elective
		Math or Science Elective (Business Analytics Industry)
		MAT 275: Modern Differential Equations (MA)
		PHY 131: University Physics II: Electricity and Magnetism (SQ)
Industry Focus Area (Software Engineering Web and Mobile Applications)		
Required courses:		
SER 222: Design and Analysis of Data Structures and Algorithms		
SER 321: Principles of Distributed Software Systems		
SER 322: Principles of Database Management		
SER 334: Operating Systems and Networks		
SER 421: Web-Based Applications and Mobile Systems or SER 422: Web Application Programming or SER 423: Mobile Systems		
Math or Science Elective (Software Engineering Web and Mobile Applications)		
CSE 230: Computer Organization and Assembly Language Programming		
MAT 243: Discrete Mathematical Structures		

Total Hours: 120

Upper Division Hours: 45 minimum

Major GPA: 2.00 minimum

Cumulative GPA: 2.00 minimum

Total hrs at ASU: 30 minimum

Hrs Resident Credit for

Academic Recognition: 56 minimum

Total Community College Hrs: 64 maximum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2018 - 2019 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.